

HUNTINGTON (T. W.)

Points in the Pathology, Diagnosis,
and Surgical Treatment
of Appendicitis. *al*

BY

T. W. HUNTINGTON, B. A., M. D.,
Surgeon Southern Pacific Company's Hospital,
Sacramento, Cal.



SACRAMENTO, CALIFORNIA:

Reprinted from the OCCIDENTAL MEDICAL TIMES, January, 1896.

POINTS IN THE PATHOLOGY, DIAGNOSIS, AND SURGICAL TREATMENT OF APPENDICITIS.

By T. W. HUNTINGTON, B.A., M.D., Surgeon Southern Pacific Company's
Hospital, Sacramento, Cal.

Read before the California Northern District Medical Society.

Before proceeding to a formal discussion of this subject, permit me to say, that for many reasons, it is to be deeply regretted the general public has come to discredit the importance of the condition known as appendicitis, and to regard it as one of the manifold pretexts of the surgeon, for frequent and unwarranted incursions upon the abdominal cavity. At the same time, I wish to protest strongly against the flippant insincerity and ill-concealed ridicule of some who, with an assumption of authority, would set the seal of their disapproval upon efficient, well-timed, radical measures for the relief of the more serious phases of this disease. These persons boast loudly of their conservatism; but let me warn them that there is a conservatism of a higher type, which challenges empiricism, while admitting the authority of experience. There can be no doubt that all whose experience is broadest, whose investigation has been most exhaustive, and whose knowledge is most nearly perfect, are deeply impressed with the importance of this condition, the immense responsibility to be assumed in dealing with it, and the unwarrantable risk often entailed by procrastination.

Before taking up the pathology of the disease, it is well worth the time to note a few of the curious anatomical characteristics of the appendix. The valve of Gerlach, more recently described by Talmoni, deserves especial consideration. This valve is situated at the entrance into the cecum. It is a curious, half-complete structure, partially occluding the entrance, varying in different individuals, and, in most cases, absolutely useless. Doubtless, in many instances, it serves as a positive guide to foreign bodies in entering the appendix, and later, resisting the peristaltic efforts in dislodging the body. In other cases, a different anatomical structure of this valve is found, and from its conformation, it may afford more or less immunity.

Another fact worth mentioning, is the varying caliber at the cecal orifice. Many times, in the recurrent variety, the caliber is of immeasurably large dimensions, better affording entrance to fecal matter, or foreign bodies. The most frequent and least dangerous



variety, the simple catarrhal, is a form very few escape. It has been suggested that in some cases, the inflammation is a continuation of a typhlitis, but the evidence afforded by many *post-mortem* examinations, proves the theory, that the appendix is always the primary seat of disease.

The bacillus coli communis is probably never the exciting cause, but that it assists in the destructive process, after the previous entrance of a foreign body, is quite probable.

The vast majority of cases are due to scybala, one or more small concretions of feces entering the appendix, first as molded, moist bodies, afterward becoming more compact and harder, if not expelled by the peristaltic efforts of the appendix. The organ, in its heroic efforts to rid itself of the enemy, produces the characteristic appendicular colic. During this period, the diverticulum has assumed an angry appearance, has increased in size, and its blood vessels are distorted. The lumen of the organ becomes smaller, thus lessening the caliber, or entirely obliterating the cecal orifice. The secretions being retained, and the circulation partially interrupted, the congestion becomes intense. The bacteria now have a more destructive influence and multiply rapidly.

In a severe form of catarrhal appendicitis, the organ may attain an enormous size, and sometimes without corresponding discomfort. Usually a deposit of lymph, externally, takes place, and causes adhesions which bind down the appendix in curious shapes and positions. Where the inflammatory process is gradual, a circum-scribing wall is produced, forming a barrier against general peritonitis.

In the recurrent chronic variety, after each attack, a partial resolution takes place, but adhesions form which become firmer and firmer with each succeeding attack, while the walls of the organ become more susceptible to perforation.

In the explosive variety, the same conditions exist as described in the other forms. The appendix, no longer capable of resisting the immense pressure, bursts. The confined liquid elements, saturated with bacteria, make their escape. If the plastic exudate has prepared a receptacle, a general peritonitis is temporarily avoided, but, unfortunately, this state of facts does not always exist. The more serious form, is where the contents are emptied into the free peritoneal cavity, or when the entire appendix becomes gangrenous, rendering a fatality practically inevitable.

A rare but curious pathological change in the appendix occurs in the formation of a fibroid intra-mural growth. A case of this sort has recently come under my observation. The fibroid mass was

about one-half inch in diameter. The segment, lying superficially, had undergone a degenerative change, and at the time of removal, its contents were of a purulent character. It had caused marked disturbance, and the patient's life had been rendered almost a burden. The lumen of the organ was patent and contained fecal deposits. There can be no doubt that it would have become an explosive case in course of time.

We come next to the consideration of diagnostic points which are of special moment. Omitting a recital of those symptoms which are unmistakably characteristic, I shall allude only to certain features that are misleading or subject to misinterpretation.

Acute attacks are often ushered in by severe colicky pains, referable to parts remote from the appendix. The epigastrium is a common seat for this manifestation. The renal tract is also occasionally involved, and the annoyance from dysuria and renal colic are sometimes unbearable to the patient, and most perplexing to the attendant. I have known a patient, who complained only of deep-seated pain, affecting the sigmoid flexure and extending to the rectum. Nausea and vomiting are also among the premonitory signs, and persistent vomiting is a constant early attendant upon the explosive variety. In the recurrent form of the disease, the patient often recognizes the approach of an exacerbation by these symptoms. Constipation, when present, is significant, but in a fair proportion of cases, it is not observed until the attack has become well established. Now and then the patient walks with a peculiar gait. This is due to coincident implication of the psoas and iliacus muscles, whereby the patient is led to walk with a slight bending forward, which, to the experienced eye, is altogether typical.

The one symptom that is, of all others, constant and reliable, is pain responsive to pressure, at or near McBurney's point. This symptom, in urgent cases, is so prominent that it can hardly be overlooked, but, occasionally, it can only be elicited by the most dexterous manipulation. Where there is a general masking of symptoms, this becomes important, and is sometimes the only key to the situation. I have often obtained satisfactory and reliable knowledge of a most grave pathological condition, by a resort to this measure, after having been repeatedly assured by the patient and others interested that no such evidence was obtainable.

There seems to be no rule governing the presence or absence of fever in this class of cases. In the chronic recurrent type, there is often a regular daily rise of temperature extending over long periods of time. On the other hand, each successive recurrence may be ushered in by slight chilly sensations, or a positive rigor, to be suc-

ceeded by persistently high temperature. As the attack subsides, the fever disappears, and a normal temperature is the rule during the interval. When this state of facts exists, we usually have to deal with the catarrhal variety of the disease. It is worthy of note that very radical pathological changes may occur, the organ may become gangrenous, and a collection of pus ensue without a recognized premonitory chill, or an alarming temperature. The following case will illustrate the point:

L. J. O—, age 21, an assistant agent, entered the Southern Pacific Company's Hospital May 1, 1895. For several weeks prior to admission, he had complained of colicky pains, and general indisposition, but had continued at work until the evening of April 30th, when he took the train for Sacramento. On examination, I found him suffering from great tenderness in the right iliac region, where there was also a resistant mass. His temperature was 99° F. Believing that I had to deal with an appendicular abscess, I proposed an operation, which was accepted. At 4 P. M. of same day, I operated, and evacuated four ounces of fetid pus. The appendix was gangrenous and exploded. It was tied off, the cavity thoroughly cleansed, and packed with iodoform gauze. Temperature at time of operation, 99°. The patient went on to a rapid recovery, and was well in five weeks from date of entrance.

There can be little doubt, that at some time, possibly several weeks prior to operation, there was a slight but unrecognized chill. It is also probable that following the chill, there was a rise of temperature, but, fortunately for the patient, the abscess wall was so perfect as to preclude absorption.

I have discussed this phase of the subject somewhat at length, for the reason that, occasionally, I have found it difficult to remove from the mind of a colleague, the idea that a recognized chill and succeeding high temperature, are constant attendants upon a pus cavity.

In approaching the matter of surgical treatment for appendicitis, we are first confronted by the query, What cases are operable, and what cases are not operable? An impression is abroad that many surgeons stand ready to operate upon any and every case which presents itself. This is certainly an error; my own experience, together with the expressed assurance of many others, leads me to the belief that fully one-half of the cases met with are inoperable—inoperable for the time, at least, and many of them of that mild catarrhal type, which rarely assumes proportions so formidable as to demand radical treatment.

It is, perhaps, easier to say when to operate, than to define the class of cases which are to be relegated to medical treatment. It seems to me rational and surgical to offer an operation to the chronic

recurrent cases whenever the attacks are formidable, or when the patient is invalidated for a large portion of the time. I have come to regard operative treatment not only as a life-saving, but as a comfort-giving proposition. The following case illustrates this point:

M. L.—, aged 26; married. Has one child nearly four years of age. For three years has been a chronic invalid, suffering from frequent attacks of appendicitis. During this time she has been delivered of a still-born child, at eight months, and has aborted once at three months. Both these accidents were attributed to the appendix trouble. I saw her on September 1, 1895, and found all the symptoms of chronic recurrent appendicitis prominent and urgent. I advised an operation, which was done on the 5th of September. The appendix was found enlarged, engorged, and filled with foul, soft, fecal matter. The patient was well in nine days, and left for her home in Marysville at the end of the third week.

I am by no means prepared to say that this woman's life was in immediate danger. Nor do I wish to debate the question whether or not, skilful medical treatment might not have averted the operation entirely, after a protracted period of invalidism. I do, however, maintain, and I wish emphatically to urge, this point: that the woman's prospect for a quick and safe return to health was through the medium of an operation, done in an approved manner, and during the quiescent period. Furthermore, the physician or surgeon who temporizes with such a case, and for sentimental or other reasons adopts the so-called medical plan, assumes a responsibility that may eventuate in calamity to the patient, and humiliation to himself.

Within the past two weeks, a patient presented himself to the hospital, having unmistakable signs of fulminating appendicitis. Within ten minutes from the time when he entered the hospital, I proposed to operate at once, and it was no fault of mine, that the step was deferred for five hours. The specimen is before you, in evidence of the fact that an operation was imperative. Although not exploded, it was becoming gangrenous, and at one point the wall was so thinned as to admit of rupture at any moment. The case went on to uninterrupted recovery, and was well in eight days.

The *technique* of this procedure has been gradually modified and improved. In a few instances, the extremely small incision of Robert Morris, is all that is required. In the presence of a very thick and fat abdominal wall, I have found that a liberal incision, down to the fascia of the external oblique, renders a small incision through the muscular layers, entirely feasible.

The incision recommended by McBurney, presents positive advantages over that of any other operator. He recommends an incision

of proper magnitude through the skin in the axis of the fibers of the external oblique. This muscle is then split longitudinally, and the internal oblique exposed by retractors. The fibers of the latter muscle are next separated in a similar manner, the transversalis fascia is divided, and the peritoneum finally exposed. After completing the main operation, the wound is closed by first stitching the peritoneum; second, by one or two stitches uniting the separated fibers of the internal oblique; third, by a row of stitches in the external oblique fascia, and last, by closure of the skin wound. I believe this will practically obviate the possibility of ventral hernia, which was formerly by no means a rare sequel.

In dealing with the explosive or fulminating cases, opportunity is given for the exercise of an infinite amount of diagnostic precision. Here it is that delay, even for a period of an hour, may mark the difference between a successful or a fatal issue of the case. We all know with what startling rapidity the bacillus of phlegmon and gangrene is transmitted throughout the system. To avoid systemic infection, we must act boldly and with promptness.

Here, again, it seems to me the danger lies in inaction rather than in operation. If there be apparent danger of explosion, with an existing doubt as to the exact condition of the organ, prompt interference offers the best hope and the least risk to the patient. It should be constantly borne in mind that the rate of mortality for appendix removal, before septic complications have been established, is, in the hands of many operators, at the zero point.

Not until recently has the propriety of operations for the relief of diffuse septic peritonitis been clearly established. The statistics furnished by many authorities, showing as they did a frightful mortality, were most disheartening. Within the past few months, however, McBurney, of New York, has shown that with improved *technique* and wider experience there is much to hope for, even in these unpromising cases. He reports 24 cases, of which 14 recovered, and 10 died.

He advises a liberal incision. The abdominal cavity is exposed freely, and carefully sponged out at the beginning of the operation. The appendix is then removed, and the abdominal cavity freely irrigated with sterilized salt solution, six parts to one thousand. The irrigation is performed by pouring the solution from a pitcher or glass flask. The abdomen is filled, rapidly emptied and repeated many times. The cavity is again thoroughly sponged and dried. A long glass drainage tube, carrying a strip of iodoform gauze, is inserted to the floor of the pelvis. Wherever infection seems to have extended either along the loin or across the abdomen, strips of

iodoform gauze are introduced, and the external wound is thoroughly packed with the same material. The glass tube is cleansed as often as necessary, and is finally removed at the end of the first or second day.

McBurney's plan is certainly most thorough, and will commend itself to the profession. It is to be hoped that others will be as successful in its employment, as has the eminent gentleman who commends it.

Success or failure in the treatment of circumscribed appendicular abscesses depends greatly upon the manipulative skill of the operator. The dividing wall which separates the pus from the peritoneal cavity is often extremely delicate, and easily broken down. To avoid this accident should be the surgeon's first thought. Probably the greatest danger of causing general infection occurs during the process of locating the appendix. I have in one instance refrained from making a search for the appendix, because of the risk entailed thereby. The patient went on to perfect recovery, and has not suffered from subsequent recurrences. This, however, has not been the experience of others, and I should hesitate to advocate it as a rule of practice.

In dealing with these cases in future, I prefer first to evacuate the cavity, then to cleanse it as perfectly as circumstances will admit, then pack the cavity, and wait for a period of two to five days before instituting further search for the offending organ. This will afford ample time for fortifying the abscess wall, and through frequent irrigations the cavity can be rendered nearly or quite aseptic.

In not a few instances pus will be found to have burrowed upwards toward the kidney, at the side and back of the ascending colon. To provide for perfect drainage in such an emergency, I have made a counter incision through the loin, and believe that such a step will be found to greatly expedite convalescence, while affording almost perfect immunity against the formation of a persistent fistulous opening through the abdominal wall. In all cases, as a final step, the pus cavity should be carefully packed with iodoform gauze. It should also be irrigated, and the packing renewed from day to day, until it is found that the area involved has assumed an aseptic condition. At this juncture, the amount of material employed should be rapidly diminished, and finally withdrawn, when the granulation process will quickly complete the repair.

Since June, 1891, I have operated upon 40 cases of appendicitis. About one-half of these operations were done during the quiescent period. All but one of these have gone on to rapid recovery, and without complications. The exception suppurred superficially, the

wound healed, and a hernial protrusion at the seat of incision rendered a second operation necessary. Although the second wound was well in eight days, the patient still suffers from persistent abdominal pains, which are probably due to peritoneal adhesions.

Of the suppurative cases, there were six of undoubted diffuse septic peritonitis, and two that were doubtful. The latter two recovered, the former six all died. These were the only fatal cases in the entire series.

426½ J street.

